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COMMENTS

ISSUES IN INTERNATIONAL LAW CREATED BY SCIENTIFIC DEVELOPMENT OF THE OCEAN FLOOR

Michael T. Garrett

I. INTRODUCTION

The recent development of deep-water exploration techniques has increased the submarine area that scientifically is explorable. As the pace of exploration into these newly accessible areas increases, international territorial law¹ must define the available legal rights. The need for definition has been stimulated by the presence of valuable mineral substances in areas in which international juridical principles affect rights of ownership. Of course, the presence of valuable minerals beyond the continental shelf was known previously, but a lack of technology prevented mining operations. Today, technological restraints on development present only minor obstacles to the natural resource industry because of current scientific achievements.

II. SCIENTIFIC DEVELOPMENTS

This comment is concerned mainly with the relation of newly discovered scientific methods of exploration to international territorial law and the problems that arise from this relation. Most of these problems emerge in the course of exploration conducted adjacent to territorial boundaries. Because territorial borders on the continents for the most part have been settled by treaty or well-established principles of international law, only those exploration methods used in developing and mining offshore mineral substances will be considered. Mineral substances in the sea area are predominantly on or permanently attached to the sea bed, or are integrated with the subsoil; therefore, only inanimate resources will be discussed.²

¹ "International Territorial Law" is used to identify the law establishing the nature of the rights a state has over its territory. This includes the legal principles establishing the boundaries. Brierly, *The Law of Nations* 162 (6th ed. 1963); 1 Hyde, *International Law* 319 (2d rev. ed. 1947); 1 Oppenheim, *International Law* 451 (8th ed. 1955).

² Animate resources within the so-called "sedentary fisheries" are not within the scope of this comment. See Young, *The Geneva Convention on the Continental Shelf: A First Impression*, 52 Am. J. Int'l L. 733, 736 (1958).

A. Petroleum

A history of the evolution of offshore petroleum development, considered with subsequent court decisions, provides an excellent framework within which to study current problems in, and future demands to be made on, international law. The petroleum development of areas off the coasts of California, Louisiana and Texas records such a process.³

The first exploration attempted beneath the sea was accomplished by drilling a directional hole from an adjacent upland site. This method confined offshore exploration to a small area very close to the dry shore. Subsequently, new technological methods, e.g., the artificial-island and submergible-barge techniques,⁴ made possible exploration of the marginal sea. As a result of this exploration a new jurisdictional problem arose: Does the whole tideland area⁵ lie shoreward (therefore subject to state control) from the boundary line separating the territory belonging to the states from that belonging to the Federal Government?⁶ The Supreme Court of the United States answered this question in a series of cases collectively referred to as the *Tidelands Decision*,⁷ which established the basic legal rights⁸

³ Bartley, *The Tidelands Oil Controversy* (1953).

⁴ The artificial island technique includes all methods which involve use of a fixed-platform rig. Usually piles are driven into the ocean floor with the derrick mounted on top of a platform above the water level. The facility is permanent. The submergible barge technique includes all movable structures that are floated into position and either lowered to the ocean floor or legs are jacked down to the ocean floor with the platform remaining above the water level. Taylor, *Plumbing the Seas for Oil*, 71 *Fortune*, No. 2, p. 131 (1965). See note 14 *infra*.

⁵ The tidelands are "those lands which are covered and uncovered by the daily flux and reflux of the tides." Shalowitz, *Shore and Sea Boundaries* 5 (1962). See also *Submerged Land Acts* § 2, 67 Stat. 29 (1953), 43 U.S.C. § 1301(c) (1958).

⁶ The location of the boundary establishes the offshore limit of a coastal state's jurisdiction and the beginning of the federal government's jurisdiction. Exec. Order No. 9633, 10 Fed. Reg. 12305 (1945). The proclamation states: "[W]ith modern technological progress their [resources of the continental shelf] utilization is already practicable. . . ." *Ibid.* Due to this scientific progress, "the Government of the United States [regarded] . . . the natural resources of the subsoil and sea bed of the continental shelf contiguous to the coasts of the United States . . . subject to its jurisdiction and control." *Ibid.* An accompanying press release described the continental shelf as "submerged land which is contiguous to the continent and which is covered by no more than 100 fathoms (600 feet) of water." 13 Dep't State Bull. 484 (1945). See *Submerged Lands Act* § 4, 67 Stat. 31 (1953), 43 U.S.C. § 1312 (1958).

⁷ *United States v. Texas*, 339 U.S. 707 (1950); *United States v. Louisiana*, 339 U.S. 699 (1950); *United States v. California*, 332 U.S. 19 (1947). These cases are frequently referred to collectively as the *Tidelands Decision* or *Submerged Lands Cases*. Two subsequent decisions further defined the rights in these areas. *United States v. Louisiana*, 363 U.S. 1 (1960); *United States v. Florida*, 363 U.S. 121 (1960).

⁸ The Court held that Texas and Florida were entitled to a maritime boundary three leagues from their coasts and Louisiana, Mississippi and Alabama were entitled to only three geographical miles. The respective right of each state to either a three-league or a three-mile maritime boundary was established; however, the court expressed no opinion on the location thereof.

in the tideland area. Although the Court's decision settled the claims and rights in the area under exploration, it failed to provide a usable method for locating the federal-state boundary line.⁹ Congress temporarily avoided the boundary issues by passing the *Submerged Lands Act*¹⁰ in 1953 before exploration had engulfed the general area defined by the *Tidelands Decision*.¹¹ The act extended the federal-state boundary beyond the exploration area,¹² but did little to prevent future conflict.¹³

Technology presently has advanced to the point that petroleum-bearing strata can be explored economically at sea depths of over 800 feet. The recently devised floating-vessel¹⁴ technique is a breakthrough allowing scientific exploration in depths greater than 12,000 feet.¹⁵ Not only does the development of this drilling technique revive the federal-state boundary dispute, it also creates an international legal problem concerning the ownership of natural resources present on the ocean floor¹⁶ or integrated in the subsoil located on and beyond the continental shelf.

⁹ *United States v. Louisiana*, 363 U.S. 1 (1960); *United States v. Florida*, 363 U.S. 121 (1960). See Weber, *Tidelands Decision Leaves Some Big Questions Unanswered*, 58 Oil & Gas J., June 6, 1960, p. 68.

¹⁰ 67 Stat. 29 (1953), as amended, 43 U.S.C. § 1301 (1958).

¹¹ The committee report on this act states: "The purpose of this legislation is to write the law for the future as the Supreme Court believed it to be in the past." S. Rep. No. 133, 83d Cong., 1st Sess. 8 (1953).

¹² The result of the act was to redefine the federal-state boundary as the "seaward boundaries of the states," and to reject the Supreme Court's pronouncement in the *Tidelands Decisions* defining such boundary as the "ordinary low-water mark and the seaward limits of inland waters." See *Submerged Lands Act* § 4, 67 Stat. 31 (1953), 43 U.S.C. § 1312 (1958).

¹³ The U. S. Solicitor General has stated that in determining the exact location of the federal-state boundary applicable principles of international law and domestic law must be used. One of the issues to be decided is whether "the situation is governed by older principles of international law or should take into account the Norwegian fisheries case and the principle incorporated into the Geneva Convention." LaMotte, *Says Solicitor General: Tough Legal Points Bristle Boundary Dispute*, 60 Oil & Gas J., Jan. 8, 1962, p. 34. See note 45 *infra* and accompanying text.

¹⁴ The floating vessel technique includes two types of designed rigs, *i.e.*, the submersible barge and the ship-hulled or center "plug" ship. The ship-hulled rig floats on the water surface and is held steady by heavy anchors. Similarly, the center "plug" ship (drilling ship) is anchored and depends on thrust engines mounted at bow and stern to keep the ship in position. The submersible barge or floating barge is built so that over two-thirds of the structure is beneath the water level but not attached to the ocean floor. The barge is held in position by anchors. Taylor, *Plumbing the Seas for Oil*, 71 Fortune, No. 2, p. 131 (1965). See note 4 *supra*.

¹⁵ In addition, the current research project Mohole has developed offshore drilling techniques that make the entire ocean floor scientifically open to exploration. See Bascom, *A Hole in The Bottom of the Sea* (1961); National Academy of Science, *Experimental Drilling in Deep Water* (1961); Gardner, *Oil Stands to Gain From the Mohole*, 59 Oil & Gas J., Jan. 16, 1961, p. 119.

¹⁶ The resources referred to are nontransitory substances actually or constructively attached to the seabed or integrated in the subsoil. Natural resources are defined in § 19 of the *Submerged Lands Act*, 67 Stat. 29 (1953), as amended, 43 U.S.C. § 1301 (1958). Demands for exclusive control of parts of the ocean floor were stimulated by mineral discoveries. McDougal, *Crisis in the Law of the Sea*, 67 Yale L.J. 539, 541 (1958).

The exploration in the North Sea has created a serious conflict in which international territorial law principles are applicable.¹⁷ The sudden rush to this area was stimulated by the development and re-evaluation of economic and technical possibilities. New techniques¹⁸ make the entire North Sea accessible to exploration and development. At the present time, many littoral (coastal) countries have made concessions to companies for drilling beyond a three-mile line running parallel to the low water coast line.¹⁹ These concessions are possibly outside territorial waters in the open seas area. Even though the drilling operations presently are preliminary in nature and confined to shallow waters, seismic studies are being conducted far out to sea.²⁰ This is very similar to the early sequence of exploration off the coasts of Louisiana and Texas. The future exploration and development in the North Sea is dependent on an adequate statement of international law establishing the rights gained under these concessions.

Questions raised by operations in the North Sea are pressing but limited in scope because most of its ocean floor is on the so-called shallow area of the continental shelf.²¹ The new techniques, however, make possible scientific exploration beyond the continental shelf, in depths of over 12,000 feet (4,000 metres), and thus enlarge the scope of the international boundary problem.²² Whether a state (national country) can grant exploration and development concessions to petroleum companies beyond the shallow area of the continental shelf contiguous to its shores is a problem presented by drilling activity off the coasts of Alaska, California,²³ and in the Gulf of Mexico,²⁴

¹⁷ *North Sea Rush Gathers Force*, 31 Petroleum Press Service 164, 165 (1964).

¹⁸ *The Challenge of the Sea*, 30 Petroleum Press Service 92 (1963).

¹⁹ 31 Petroleum Press Service 67 (1964).

²⁰ *Stock, Oil Hunt Over the North Sea*, 5 Petroleum Today, Spring 1964, p. 22; *Rush to the North Sea*, 30 Petroleum Press Service 211 (1963).

²¹ See *infra* note 85 and accompanying text. See also *Award of Lord Asquith of Bishopstone*, 1 Int'l Comp. L.Q. 247, 254 (1952); Convention on the Continental Shelf, art. 1, U.N. Doc. No. A/CONF. 13/L.55 (1958); *Rush to the North Sea*, 30 Petroleum Press Service 211, 212 (1963).

²² Another problem is present besides the development of techniques for drilling in deeper waters. Recently a U. S. Coast and Geodetic Survey ship discovered a mountain rising to within ninety feet of the surface between the Panama Canal and Key West. Who has the right to exploit the resources of the mountains beneath the sea? See Boehm, *Inexhaustible Riches from the Sea*, 68 Fortune, No. 6, p. 133 (1963). The same problem is present in the Gulf of Mexico. See note 24 *infra*.

²³ Lawrence, *Offshore is California's Best Bet for Big Discoveries*, 60 Oil & Gas J., March 26, 1962, p. 132. It also should be noted that geophysical work has been conducted off the coasts of Washington and Oregon. Bike, *Geophysical Offshore Work Gains Momentum in Washington and Oregon*, 60 Oil & Gas J., March 26, 1962, p. 164; Weber, *Circumpacific Petroleum Exploration*, 60 Oil & Gas J., March 26, 1962, p. 109.

²⁴ The United States completed its biggest sale of offshore leases in the Gulf of Mexico, which included areas where the water depth is over 600 feet. Wilson, *Giant Sale Should Guarantee Offshore Activity in Gulf for 5 Years*, 60 Oil & Gas J., Jan. 22, 1962, p. 34. "Jutting up from the ocean floor in the Gulf of Mexico are hills and peaks. . . . Some of

the Gulf of Paria²⁵ and the South China Sea.²⁶ A large percentage of the petroleum deposits in these areas are presumed to be located beyond the area defined as the continental shelf.²⁷ Scientific advances and the economic feasibility of exploiting deep-water areas present a world-wide ocean floor boundary problem.

B. Solid Minerals

Unlike recent petroleum activity, the discovery of valuable solid minerals on and attached to the sea bed has not created any current important international boundary problems. Until recently, the available mining methods have confined exploration to shallow water areas. Tunneling from the shore line seaward is a method which has existed since 1852, but its use has been limited to a tunnel no longer than four miles.²⁸ Dredge equipment has been used to mine gold, seaweed, coral, manganese and similar minerals from the subsoil and off the sea bed. At the present time, a hydraulic mining dredge method is used in shallow water, but the developers are confident that similar equipment can be developed to mine at depths of 12,000 feet.²⁹ There is little doubt that after the shallow water areas have been depleted, the question raised by the petroleum industry of the available rights in deep-water areas will be posed by the mining industry.

III. INTERNATIONAL LAW—THREE AREA DIVISION³⁰

The legal principles of international law applicable to the exploration and utilization of the natural resources of the bed and subsoil of submarine areas are dependent on the historical division of the seas.³¹ In early Roman law, the sea was considered to be subject to a

these 'sea mounds' are several miles in diameter. . . ." Gardner, *Deep-Water Oil Reserves*, 54 Oil & Gas J., Nov. 26, 1956, p. 58. There is some evidence indicating that these mounds are salt domes. *Ibid.*

²⁵ *The Challenge of the Sea*, 30 Petroleum Press Service 92 (1963); Swain, *World-wide Offshore Drillers "Bullish,"* 59 Oil & Gas J., July 10, 1961, p. 98; Swain, *World-wide Offshore Areas Began to Yield their Promised Riches*, 58 Oil & Gas J., June 6, 1960, p. 93.

²⁶ *The Challenge of the Sea*, 30 Petroleum Press Service 92 (1963).

²⁷ Lawrence, *supra* note 23, at 132.

²⁸ The longest known mine tunnel beneath the sea is underneath the Pacific out from Lota, Chile. Brief for Plaintiff, p. 4, *United States v. Texas*, 339 U.S. 707 (1950); Oda, *International Control of Sea Resources* 151 (1963).

²⁹ Boehm, *supra* note 22, at 135.

³⁰ On the historical division in general, see Boggs, *International Boundaries* 176 (1940); Brierly, *The Law of Nations* 162 (6th ed. 1963); Colombos, *The International Law of the Sea* 44, 79 (5th rev. ed. 1962); Fulton, *The Sovereignty of the Sea* 537 (1911); 1 Hackworth, *Digest of International Law* 569 (1940); 1 Hyde, *International Law* 451 (2d rev. ed. 1947); Jessup, *The Law of Territorial Waters and Maritime Jurisdiction* 115 (1927).

³¹ "The specific claims to authority asserted by states in seeking their diverse objectives may be categorized in terms of the degree of comprehensiveness of authority claimed and of the geographical area in which it is asserted." McDougal, *Crisis in the Law of the Sea*, 67 Yale L.J. 539, 550 (1958).

common or public use. The Justinian Digest formulates the principle that the sea and its shores are common to everyone by natural right.³² Even though this principle was accepted by the majority of nations, many countries asserted unilateral dominion³³ over areas extending beyond their coastal shores. Most of these extensions were made to gain military security, to provide a monopoly of fishery or to prevent other countries from harvesting the natural resources of the tideland areas.

In 1609, Hugo Grotius, in *De Jure Praedae*, deplored any territorial extension offshore and advocated recognition of the traditional Freedom of the Seas doctrine. His advocacy was based on the premise that an area which cannot be exclusively occupied cannot be the object of dominion. "Mare Liberum," the title of the chapter in which this view was advocated, has been used ever since to exemplify the Freedom of the Seas doctrine. Conversely, international recognition of the Closed Sea doctrine³⁴ was advocated by John Seldon in *Mare Clausum* to support England's territorial extensions. The Closed Sea doctrine supports the division and ownership of the entire ocean by the state which gains dominion.³⁵

Which doctrine was to be applied was not a settled matter in 1702 when Cornelius van Bynkershoek advocated a compromise in *De Dominio Matis*. Bynkershoek reasoned that the two principles were not completely antagonistic, and that a littoral state should be able to extend its territorial rights into the sea up the point a shorebased weapon could reach. This compromise implicitly contained the idea that dominion ends where the power to maintain it ends.³⁶ After 1702, little distinction was made between full and partial possession, and it was presumed that the area within cannon-shot range of the shore was fully possessed.³⁷ This area was designated the *Marginal Sea* or *Territorial Waters*. The sea area beyond "cannon-shot" range was termed the *High Seas* or *Open Seas*. The area lying landward

³² Fulton, *Sovereignty of the Sea* 3 (1911); Garcia Amador, *The Exploitation and Conservation of the Resources of the Sea* 13 (2d ed. 1959).

³³ "When a state exercises an authority of this kind over a certain territory it is popularly said to have 'sovereignty' over the territory, but that much-abused word is here used in a rather special sense. It refers . . . to the nature of rights over territory. . . ." Brierly, *The Law of Nations* 162 (6th ed. 1963).

³⁴ See Fulton, *Sovereignty of the Sea* 369 (1911).

³⁵ Fenwick, *International Law* 418 (3d ed. 1948).

³⁶ I Bynkershoek, *De dominion Maris*, ch. 8 (1737); *Classics of International Law*, Carnegie Endowment Series 82 (1923).

³⁷ An Italian jurist, Ferdinando Galiani, first stated the range of guns was equivalent to three miles (one maritime league). The one sea league principle was later adopted by the United States. Jessup, *The Law of Territorial Waters and Maritime Jurisdiction* 6 (1927). See also Kent, *The Historical Origins of the Three-Mile Limit*, 48 *Am. J. Int'l L.* 537 (1954); Walker, *Territorial Waters: The Cannon Shot Rule*, 22 *Brit. Yb. Int'l L.* 210 (1945).

from the inland-territorial sea boundary³⁸ is included in the inland water area. With the international recognition of these rules, the seas were divided into three juridical areas, *i.e.*, *Inland Waters*, *Territorial Waters* and *High Seas*.³⁹

A. Inland Waters

The threefold classification of the seas necessitates two boundary lines to be located by principles of international law. These borders separate the inland water area from the territorial sea and the territorial sea from the high seas. The inland water area⁴⁰ along the coastline was defined by fixing the location of a baseline from which to apply the measurement recognized as the breadth of the territorial sea belt.⁴¹ The rights of a littoral state to use the inland water area are greater than its rights in the outer two juridical areas and almost as great as its power over its land territory. It is a generally accepted principle of international law that a littoral state has the exclusive right to exploit the natural resources discovered within the inland water area.⁴² The only limitations on the right to use this area are imposed by international maritime law and have no application to the exploration and development of natural resources.

One must keep in mind while reviewing contemporary legal theories for locating the inland-territorial baseline that the two juridical principles, "Mare Liberum" and Mare Clausum,"⁴³ generally are used as a basis for acceptance or rejection of an advocated theory. There are two contemporary methods of locating the baseline between the inland water area and the territorial sea. One advocates locating the line from headland to headland of the coast, and the other runs the line parallel to the low-water mark on the shore. The latter follows the sinuosities of the coast and decreases the inland sea area, whereas the former provides a much larger inland water area.

In 1958 at Geneva, the Convention on Territorial Sea and the Contiguous Zone was adopted.⁴⁴ This Convention recognized the

³⁸ See note 41 *infra* and accompanying text.

³⁹ Smith, *The Law and Custom of the Sea* 6 (1950).

⁴⁰ Brierly, *op. cit. supra* note 33, at 194.

⁴¹ Shalowitz, *Shore and Sea Boundaries* 27 (1962). The principles applicable in locating this boundary line are currently being debated by the United States Government and its coastal states due to litigation involving the location of the federal-state boundary. See note 11 *supra*.

⁴² McDougal, *Crisis in the Law of the Sea*, 67 Yale L.J. 539, 574 (1958).

⁴³ Professor McDougal identifies the "Mare Liberum" point of view as *Internationalist Myopia* and the "Mare Clausum" point of view as *Provincial Myopia*. McDougal, *supra* note 42, at 546.

⁴⁴ On April 27, 1958, by a vote of 61 to 0, with 2 abstentions. Y.B. of the United Nations 378 (1958). The force and binding effect of a convention is as follows: "An inter-

principles introduced and applied by the *Anglo-Norwegian Fisheries case*⁴⁵ for locating the baseline,⁴⁶ including fixing the baseline as the low-water line along the coast. Moreover, the Convention provided an exception to the general principle, to be applied where the coast is deeply indented or where there are archipelagos or a fringe of islands along the coast. In such a situation a method of drawing straight lines that connect the appropriate points (headlands) may be used to determine the baseline. This provides a larger inland water area and reflects "Mare Clausum" in a limited fashion. The conference was unable to reach agreement on the maximum length⁴⁷ of the straight lines, but it did require that they be broken to prevent any departure from the general direction of the coast. If a bay is involved, a twenty-four mile straight line maximum was adopted.⁴⁸ The same limitation was approved for the mouth of a river flowing into the sea. However, there is still some doubt whether the principle applied to bays also applies to an estuary.⁴⁹

B. Territorial Sea

"The sovereignty⁵⁰ of a state extends, beyond its land territory and its internal waters, to a belt of sea adjacent to its coast, described as the territorial sea."⁵¹ Although the right of a littoral state to have

national legislature, in the sense of a body having power to enact new international law binding on the states of the world or on their peoples, does not exist. . . . The international community has been content to rely for the development of its law on the slow growth of custom." However, a constructive process "of changing the law by means of conventions reached at international conferences" recently has been recognized. Briefly, The Law of Nations 96 (6th ed. 1963). "The conference is not a continuous body; it meets for some special purpose and then dissolves. The conventions at which it arrives have no binding force over states which do not accept them, and unfortunately states . . . often fail to ratify even those conventions which their representatives have signed [or adopted]." *Id.* at 97. Therefore, a state must adopt and ratify (unless provision is made otherwise) a convention to be bound by it. As defined, the importance of a convention is not its binding force but the pronouncement of custom.

⁴⁵ Fisheries Case, [1951] I.C.J. Rep. 116.

⁴⁶ United Kingdom v. Norway, [1951-1952] I.C.J.Y.B. 78; Convention on the Territorial Sea and Contiguous Zone, U.N. Doc. No. A/CONF. 13/L.52 (1958). See also McDougal, *supra* note 42, at 561.

⁴⁷ A ten-mile rule was recognized in North Atlantic Coast Fisheries Arbitration, in Wilson, Hague Arbitration Cases 187 (1915).

⁴⁸ When the mouth of the bay, measured at the low water mark, is more than twenty-four miles across, the line may be drawn within the bay to provide the littoral state the maximum inland water area. This was provided in article 7 of the adopted draft. U.N. Doc. No. A/CONF. 13/L.52 (1958). There is also an exception provided for historic bays. 1 Shalowitz, Shore and Sea Boundaries 47 (1962); Hurst, *The Territoriality of Bays*, 3 Brit. Yb. Int'l L. 42 (1922-23).

⁴⁹ Teclaff, *Shrinking the High Seas by Technical Methods*, 39 U. Det. L.J. 660, 672 (1962).

⁵⁰ See note 33 *supra*. "No unanimity exists as to the nature of the jurisdiction of the littoral states." 1 Oppenheim, International Law 487 (8th ed. 1955). See generally Kelsen, *Sovereignty and International Law*, 48 Geo. L.J. 627 (1960).

⁵¹ Convention on the Territorial Sea and the Contiguous Zone, art. 1, U.N. Doc. No. A/CONF. 13/L.52 (1958).

a territorial sea traditionally has been recognized, its proper breadth has always been uncertain. Bynkershoek's "cannon shot" principle formerly was recognized as establishing a breadth measure.⁵² As cannons were improved, "Mare Liberum" prevented any proportionate increase in the territorial sea breadth.⁵³ But by 1930, there were so many new assertions⁵⁴ and different ideas pertaining to the proper breadth of the territorial sea that the Hague Codification Conference ended without adopting an article on the topic.⁵⁵ The same performance was repeated at the 1958 United Nations Conference on the Sea at Geneva. A second Geneva conference was held in 1960 for the specific purpose of settling the issue. However, the conference was dismissed without adopting an agreement, although some guidelines emerge from a study of the record of the conference.⁵⁶ The record filed by the second Geneva conference and the two that preceded it clearly reject any unilateral extension beyond a twelve-mile breadth.⁵⁷ It seems that a three-mile breadth clearly would be within the principles of customary law,⁵⁸ but if the claim exceeds three miles, it is uncertain whether such an extension would be recognized.⁵⁹

The rights (sovereignty) of a littoral state within its territorial

⁵² One writer believes that the cannon shot principle was recognized before Bynkershoek, who may have been the first to write concerning it in *de dominion Maris*. Walker, *Territorial Waters: The Cannon Shot Rule*, 22 Brit. Yb. Int'l L. 210, 211 (1945). See also Kent, *The Historical Origins of the Three-Mile Limit*, 48 Am. J. Int'l L. 537 (1954), who considers the adoption of the three-mile rule to be the result of agreement that a shore based cannon would reach three miles and that this was hypothetically extended to provide a continuously protected belt.

⁵³ Fulton, *op. cit. supra* note 31, at 576.

⁵⁴ McDougal, *The Community Interest in a Narrow Territorial Sea*, 45 Cornell L.Q. 171, 174 (1960).

⁵⁵ For a study on uniformity see Svarlien, *The Territorial Sea: A Quest for Uniformity*, 15 U. Fla. L. Rev. 333 (1960).

⁵⁶ Second United Nations Conference on the Law of the Sea, U.N. Doc. No. A/CONF. 19/8 (1960).

⁵⁷ Major support is found in Convention on the Territorial Sea and the Contiguous Zone, art. 7, para. 5, U.N. Doc. No. A/CONF. 13/L.52 (1958).

⁵⁸ An arbitration board has recognized the three-mile breadth measurement. *Award of Lord Asquith of Bishopstone*, 1 Int'l Comp. L.Q. 247, 252 (1952).

⁵⁹ Dean, *The Second Geneva Conference on the Law of the Sea*, 54 Am. J. Int'l L. 751, 753 (1960); Robles, *The Second Geneva Conference on the Law of the Sea—A Reply*, 55 Am. J. Int'l L. 669 (1961); Dean, *The Second United Nations Conference on the Law of the Sea—Response*, 55 Am. J. Int'l L. 675 (1961). There are presently several factors indicating that claims out to twelve miles will be approved. The major influencing factor is the twenty-four-mile straight line limit adopted for bays. Jessup, *The Law of the Sea Around Us*, 55 Am. J. Int'l L. 104 (1961). International law does not permit an extension of the contiguous zone beyond twelve miles from the baseline from which the breadth of the territorial sea is measured. Convention on the Territorial Sea and Contiguous Zone, art. 24, para. 2, U.N. Doc. No. A/CONF. 13/L.52 (1958). In art. 24, § 2, the contiguous zone is limited to twelve miles. Some of the South and Central American countries claim a two-hundred-mile breadth (e.g., Chile, El Salvador, Honduras and Costa Rica).

sea belt are "exercised subject to . . . rules of international law."⁶⁰ A littoral state has control and rights of possession over this area much the same as that over its unsubmerged lands. This includes the right to appropriate the natural products of the sea, ocean floor and subsoil of the territorial sea.⁶¹ The privilege of innocent ship passage and distressed ship passage are the two important easements which a littoral state must yield, but they do not interfere with the exploration of natural resources.⁶²

The lack of a uniform standard defining the breadth of the territorial sea is at the center of the current conflict concerning submerged land in the North Sea. The rights available in the territorial sea are superior to those in the high seas area.⁶³ Therefore, it is evident that all littoral states must have the same breadth territorial sea belt in order to have equal proportionate rights to explore and develop the North Sea.⁶⁴ The same principle would be applicable in a division of the Gulf of Mexico or the entire sea area.

C. High Seas

All the seas not included within the territorial seas or the inland waters of a state are identified as High Seas.⁶⁵ The High Seas or Open Seas have had a juridical nature very much in contrast to the other two. Traditionally, the high seas have been open to use by all nations,⁶⁶ littoral or non-littoral, and no nation could assert sovereignty.⁶⁷ The character of this zone was traditionally *res communis*,

⁶⁰ Convention on the Territorial Sea and the Contiguous Zone, art. 1, para. 2, U.N. Doc. No. A/CONF. 13/L.52 (1958). For the authority a littoral state exercises over its territorial sea, see McDougal, *Crisis in the Law of the Sea*, 67 Yale L.J. 539, 574 (1958).

⁶¹ "[A] minority of writers deny the territorial character of the maritime belt, and concede to the littoral states . . . only certain powers of control, jurisdiction, police, and the like, but not sovereignty." 1 Oppenheim, *International Law* 487 (8th ed. 1955). See also Svarlien, *The Territorial Sea: A Quest for Uniformity*, 15 U. Fla. L. Rev. 333, 334 (1962).

⁶² The authority in this area includes "exclusive rights of exploitation and control over animal and mineral resources of the marginal belt." This authority also includes the right "to subject navigation in the belt to the regulation of the coastal state." McDougal, *The Community Interest in a Narrow Territorial Sea*, 45 Cornell L.Q. 171, 178 (1960). See Convention on the Territorial Sea and the Contiguous Zone, art. 14, U.N. Doc. No. A/CONF. 13/L.52 (1958).

⁶³ See note 68 *infra* and accompanying text.

⁶⁴ For a drawing showing three and thirteen-mile limits, see Fulton, *The Sovereignty of the Sea* 703 (1911).

⁶⁵ Convention on the High Seas, art. 1, U.N. Doc. No. A/CONF. 13/L.53 (1958).

⁶⁶ McDougal, *The Community Interest in a Narrow Territorial Sea*, 45 Cornell L.Q. 171, 172 (1960).

⁶⁷ Convention on the High Seas, art. 2, U.N. Doc. No. A/CONF. 13/L.53 (1958). 1 Oppenheim, *International Law* 629 (8th ed. 1955). "In past practice, the freedom of the seas has meant that each state was free to use the oceans in accommodation with other uses, not that each state was given a license to engage in any activity, irrespective of effects upon the interest of others." McDougal, *Crisis in the Law of the Sea*, 67 Yale L.J. 539, 585 (1958). At one time it was advocated that the high sea area was *res nullius*, belonging to no one, and could be acquired by occupation. Of course, this doctrine is very old and

common to all. Not only has this area been open to navigation and trade, it has been recognized to be available for exploitation to all nations.⁶⁸ The available rights generally have been freedom of navigation, the right to fish, the right to lay submarine cables and pipelines, and the right to fly over the high seas.⁶⁹ Most of these are the direct outgrowth of the ancient Freedom of the High Seas doctrine.⁷⁰ Although complete freedom in this area traditionally has been recognized, exceptions have developed which modify this principle.⁷¹ These exceptions have the effect of giving a littoral state superior rights of regulation and exclusion in specific areas beyond its territorial sea boundary.

IV. EXTENSION OF RIGHTS—CONTIGUOUS ZONE AND CONTINENTAL SHELF DOCTRINES

By using recognized exceptions to the Freedom of the High Seas doctrine, littoral states have reduced the rights traditionally available to all states in the high seas area. The two recognized methods (other than locating the baseline⁷² by claiming an improper breadth of the territorial sea) for reducing rights in the high seas area are the "Contiguous Zone" and "Continental Shelf" doctrines.⁷³ The former is geared to regulation of the sea water area while the latter is designed to provide coastal states with exclusive rights to use and exploit the seabed and subsoil adjacent to but seaward from the territorial high seas boundary. The assertion of rights through these doctrines is not considered a unilateral extension of sovereignty.⁷⁴

was advocated at a time when the ocean floor was incapable of effective occupation, but with scientific development this principle has been discarded for new and less offensive principles. Oda, *International Control of Sea Resources* 154 (1963).

⁶⁸ "The status of the resources of the high seas as *res communis* and the right of the nationals of all states to use them also has been confirmed in two well-known international arbitration awards." Garcia Amador, *The Exploitation and Conservation of the Resources of the Sea* 20 (2d ed. 1959). The resources of the high seas were considered a "common patrimony" by the Hague Convention in 1930. *Ibid.*

⁶⁹ Convention on the High Seas, art. 2, U.N. Doc. No. A/CONF. 13/L.53 (1958).

⁷⁰ Jessup, *The Law of the Sea Around Us*, 55 Am. J. Int'l L. 104 (1961).

⁷¹ International law has given priority to some rights over others when the exercise of more than one creates conflict. See note 67 *supra*. The most notable exception is the air identification zone which places a littoral state's right to security in a superior position to the freedom of the seas. See note 74 *infra*.

⁷² "In drawing the lines enclosing internal waters and thus providing baselines for measuring the width of the territorial sea, the traditional prescriptions about following the sinuities of the coast and about the length of the line enclosing bays have weighted decision in favor of the utmost practical limitation of the extent of internal waters." McDougal, *Crisis in the Law of the Sea*, 67 Yale L.J. 539, 576 (1958).

⁷³ Professor McDougal considers the claims to the continental shelf as extensions of the theory of contiguous zones. "Easily the most spectacular, and indicative of the great flexibility of the concepts of contiguous zones, are the claims to the continental shelf. . . ." McDougal, *supra* note 72, at 581.

⁷⁴ See Convention on the Continental Shelf, U.N. Doc. No. A/CONF. 13/L.55 (1958);

A. Contiguous Zone Doctrine

The contiguous zone was established to assure littoral states full benefit of the territorial sea principle.⁷⁵ This area is subject to juridical principles which differ from those applicable in the territorial sea area in that littoral states are given the right of regulation but not sovereignty. Further, regulation is limited to that necessary to prevent infringements of customs, fiscal, immigration or sanitary regulations within the littoral state's territorial sea.⁷⁶ Coupled with the power to regulate is the power to punish violations of established regulations.⁷⁷ In addition, the doctrine may allow a littoral state to control the exploitation of natural resources within the zone. However, there is no agreement on the maximum width of the zones.⁷⁸ The same problem in locating a baseline to determine the territorial sea breadth is present in locating a boundary for the contiguous zone.

The Contiguous Zone doctrine and the Continental Shelf doctrine⁷⁹ appear to be exclusive, because the continental shelf doctrine grants a littoral state sovereignty over the seabed and subsoil.⁸⁰ It is difficult to visualize a claim under the contiguous zone doctrine if the continental shelf doctrine were available, for it is unlikely that a state would be satisfied with only regulation of the airspace and water strata of an area in which it could have both the right of regulation and the exclusive right of exploitation.⁸¹

Convention on the Territorial Sea and the Contiguous Zone, U.N. Doc. No. A/CONF. 13/L.52 (1958).

⁷⁵ "The real function of the contiguous zone concept has been to serve as a safety valve from the rigidities of the territorial sea. . . ." McDougal, *Crisis in the Law of the Sea*, 67 Yale L.J. 539, 582 (1958).

⁷⁶ Convention on the Territorial Sea and the Contiguous Zone, art. 24, para. 1(a), U.N. Doc. No. A/CONF. 13/L.52 (1958).

⁷⁷ Convention on the Territorial Sea and the Contiguous Zone, art. 24, para. 1(b), U.N. Doc. No. A/CONF. 13/L.52 (1958).

⁷⁸ Although the Convention specifically provides that the contiguous zone may not extend beyond twelve miles from the baseline from which the breadth of the territorial sea is measured, the present aircraft identification regulations exercised by numerous nations of the world extend up to sixty miles. Convention on the Territorial Sea and the Contiguous Zone, art. 24, para. 2, U.N. Doc. No. A/CONF. 13/L.52 (1958). See Designated Air Defense Identification Zones, 14 C.F.R. § 99.41 (Supp. 1964); Svarlien, *The Territorial Sea: A Quest for Uniformity*, 15 U. Fla. L. Rev. 333, 345 (1962). The twelve-mile limit may have been appropriate in 1958, however, new supersonic aircraft, etc. pose a definite need for a larger breadth to prevent infringements of customs, fiscal, immigration or sanitary regulations within a state's territory. Query: should the contiguous zone be rewritten to include a flexible outer limit keyed to aircraft, etc. technology? See note 99 *infra* and accompanying text.

⁷⁹ See note 85 *infra* and accompanying text.

⁸⁰ The continental shelf doctrine does not apply to the epicontinental sea. The contiguous zone doctrine has no application to the exploitation of natural resources in this area. Oda, *International Controls of Sea Resources* 19 (1963).

⁸¹ Convention on the Continental Shelf, art. 2, U.N. Doc. No. A/CONF. 13/L.55 (1958).

B. Continental Shelf Doctrine⁸²

Development of the continental shelf doctrine was stimulated by scientific and economic developments. With the means to exploit the natural resources of the continental shelf, adjacent littoral states were moved to extend sovereignty or exclusive exploration rights into this area. The Truman Proclamation in 1945 declared that the United States considered "the natural resources of the subsoil and seabed of the continental shelf beneath the high seas but contiguous to the coasts of the United States as appertaining to the United States, subject to its jurisdiction and control."⁸³ Similar assertions had the effect of segmenting the continental shelf area into three juridical areas: the seabed and subsoil, the water area or epicontinental sea and the airspace. There are some states that claim complete sovereignty over the entire continental sea area, but since the 1958 Geneva conference these claims seem contrary to the recognized principles of customary law.⁸⁴

The 1958 United Nations Conference on the Law of the Sea adopted a Convention on the Continental Shelf. The continental shelf was defined as:

the seabed and subsoil of the marine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 metres [approximately 100 fathoms] or, beyond that limit, *to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas.* . . . (Emphasis added.)⁸⁵

⁸² For a comprehensive discussion of the articles included in the Continental Shelf Convention, see Whiteman, *Conference on the Law of the Sea: Convention on the Continental Shelf*, 52 Am. J. Int'l L. 629 (1958).

⁸³ Pres. Proc. No. 2667, 10 Fed. Reg. 12303 (1945). The importance of recognizing such a claim was pointed out in an arbitration awards as follows:

(1) it is extremely desirable that someone, in what threatens to become an oil-starved world, should have the right to exploit the subsoil of the submarine area outside the territorial limit; (2) the contiguous coastal power seems the most appropriate and convenient agency for this purpose. It is in the position to exercise effective control, and the alternatives teem with disadvantages; (3) there is no reason in principle why the subsoil of the high seas should, like the high seas themselves, be incapable of being the subject of exclusive rights in any one. The main reason . . . that they are the great highways between nations and navigation of these highways should be unrestricted. . . . The subsoil, however, of the submarine area is not a highway between nation and the installations necessary to exploit it . . . need hardly constitute an appreciable obstacle to free navigation; nor does the subsoil contain fish. (4) To treat this subsoil as *res nullius* . . . entails obvious and grave dangers so far as occupation is possible at all. *Award of Lord Asquith of Bishopstone*, 1 Int'l Comp. L.Q. 247, 256 (1952).

⁸⁴ For a complete chart showing all the different claims advanced by the coastal states, see Garcia Amador, *The Exploration and Conservation of the Resources of the Sea* 31 (2d ed. 1959). See also note 59 *supra*.

⁸⁵ Convention on the Continental Shelf, art. 1, U.N. Doc. No. A/CONF. 13/L.55 55 (1958).

The definition is similar to that of the Truman Proclamation of 1945, although the latter part of the definition provides a flexible outer limit not included in the Truman Proclamation.⁸⁶

Article 2 of the Convention provided that "the coastal state exercises over the continental shelf sovereign rights for the purpose of exploring and exploiting its natural resources."⁸⁷ The adoption of this article was a compromise between claims made by littoral states and the Freedom of the Seas doctrine. The continental shelf principle has the effect of satisfying littoral states' desires to exploit the natural resources of the continental shelf, and of preserving the freedom of the epicontinental sea.⁸⁸ Article 2 states in positive terms without any requirement of possession or occupation that the littoral state adjacent to the continental shelf has sovereignty over the seabed and subsoil for natural resource exploitation. This is clearly in conflict with the traditional doctrines stating that a state could not extend its sovereignty into these areas (*res communis*), and if such extensions were possible, the state would have to fully occupy the claimed area (*res nullis*).⁸⁹

The Continental Shelf Convention establishes two completely separate juridical areas, the epicontinental sea and the natural resource area of the seabed and subsoil. Different rights are available in each area.⁹⁰ To govern the situation in which the exercise of rights to exploit natural resources conflicts with the freedom of the epicontinental sea, the Convention included Article 5:

1. The exploration of the continental shelf and the exploitation of its natural resources must not result in any *unjustifiable interference* with navigation, fishing or the conservation of the living resources of the sea.
2. [T]he coastal state is entitled to construct and maintain on the continental shelf installations necessary for the exploration and exploitation of its natural resources. . . . (Emphasis added.)⁹¹

An objective test (*unjustifiable interference*) was established. The rights established by the Convention and customary law in each area

⁸⁶ The flexible standard was not encouraged by Scientific Considerations Relating to the Continental Shelf, Preparatory Document No. 2, para. 26, U.N. Doc. No. A/CONF. 13/2 (1958).

⁸⁷ Convention on the Continental Shelf, art. 2, para. 1, U.N. Doc. No. A/CONF. 13/L.55 (1958).

⁸⁸ "The rights of the coastal state over the continental shelf do not affect the legal status of the superjacent waters as high seas, or that of the airspace above these waters." Convention on the Continental Shelf, art. 3, U.N. Doc. No. A/CONF. 13/L.55 (1958).

⁸⁹ Oda, International Controls of Sea Resources 154 (1963).

⁹⁰ The rights of the coastal state over the continental shelf are confined to these activities pursued in the exploitation of natural resources. Convention on the Continental Shelf, art. 2, U.N. Doc. No. A/CONF. 13/L.55 (1958).

⁹¹ U.N. Doc. No. A/CONF. 13/L.55 (1958). Paragraph 4 of article 5 then provides that such installations do not possess the status of an island. Article 5 also allows the coastal state to establish safety zones around structures for a distance of 500 metres.

are placed on the same level; if activities based on rights derived from different juridical areas conflict, the importance of one to the community of nations is balanced against the importance of the other.⁹² That is, the installations a littoral state is permitted to construct when exploiting natural resources are regulated by the interference they create in the use of the airspace and epicontinental sea. Most deep water petroleum wells presently are quipped with an ocean-floor well head, due to the development of the ocean-floor completion technique.⁹³ An ocean floor completion eliminates a great deal of interference in the use of other areas, although storage and pipe line installations still create possible areas of conflict. The standard established by the Convention would seem to discourage any conformity in the equipment and drilling methods used for these purposes, because one type structure could cause interference in one area but not in another.⁹⁴

The ocean floor of the North Sea and the Gulf of Mexico seem clearly to be within the definition adopted by article 1 of the Convention on the Continental Shelf. The littoral states in these areas are adjacent and opposite each other with the geological shelf running along their coasts. Therefore, a boundary problem exists similar to making a division between two adjacent states' territorial seas. To prevent any conflicts concerning a boundary location, the Continental Shelf Convention adopted an article which expresses the same principle as article 12 of the Convention on the Territorial Sea.⁹⁵ Paragraph 1 of article 6 provides that in situations in which two or more states are opposite each other separated by an expanse of continental shelf, in the absence of an agreement,

and unless another boundary line is justified by special circumstances, the boundary is the median line, every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each state is measured.⁹⁶

Paragraph 2 of the same article provides that in situations where two littoral states are adjacent with the same expanse of continental shelf running along their coasts:

⁹² For an outline of the task faced, see McDougal, *Crisis in the Law of the Sea*, 67 Yale L.J. 539, 565 (1958).

⁹³ The United States has adopted laws and regulations governing the equipment used in the development of specific areas within the continental shelf area. Submerged Lands Act § 4, 67 Stat. 462 (1953), 43 U.S.C. § 1333 (1958).

⁹⁴ A robot has been developed to make completions on the ocean floor at depths of 4,000 feet. It is also used to re-enter the well for a work-over. Weber, *New Robots Work on Subsea Wells*, 60 Oil & Gas J., Nov. 5, 1962, p. 62.

⁹⁵ Convention on the Territorial Sea and Contiguous Zone, art. 12, U.N. Doc. No. A/CONF. 13/L.52 (1958).

⁹⁶ Convention on the Continental Shelf, art. 6, U.N. Doc. No. A/CONF. 13/L.55 (1958).

in the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary shall be determined by application of the principle of equidistance from the nearest points of the baselines from which the breadth of the territorial sea of each state is measured.⁹⁷

These paragraphs provide a formula by which to divide the continental shelf beyond the baseline (inland-territorial waters boundary) beneath the North Sea and the Gulf of Mexico. Presently, there is little agreement on the location of this baseline in the North Sea, and until some type of agreement is made it would seem futile to estimate its location, due to the North Sea's heavily indentured coast.⁹⁸

The adoption of a flexible outer limit by the Continental Shelf Convention seems to create a chaotic condition considering current scientific developments.⁹⁹ Article 1 of the Convention provides that the continental shelf is considered to reach "to a depth of 200 metres or, beyond that limit, to *where the depth of the superjacent waters admits of the exploitation of the natural resources.*"¹⁰⁰ This definition has the advantage of extending sovereignty to include the geological terrace and slope. However, a literal interpretation of article 1 creates a dilemma. Considering present technology, the entire sea area is capable of exploitation; therefore, under the article, littoral states could have sovereignty over the seabed and subsoil of the entire sea area to the exclusion of non-littoral states. The Continental Shelf Convention does not require actual exploitation of the area but only that there be a means thereof.¹⁰¹

Article 1 of the Convention seems to be a masked doctrine limiting the freedom of the seas to navigation and fishing¹⁰² and giving littoral states sovereignty of the ocean floor subject to a few easements.¹⁰³ The traditional principle *res communis* definitely would provide non-littoral states an equal right to exploit the natural resources of the ocean floor in the high seas area.¹⁰⁴ The common law rule of capture

⁹⁷ Convention on the Continental Shelf, art. 6, U.N. Doc. No. A/CONF. 13/L.55 (1958).

⁹⁸ See note 46 *supra* and accompanying text.

⁹⁹ *Into Deeper Waters*, 29 Petroleum Press Service 272 (1962).

¹⁰⁰ Convention on the Continental Shelf, U.N. Doc. No. A/CONF. 13/L.55 (1958).

¹⁰¹ See note 89 *supra* and accompanying text.

¹⁰² One writer thinks that it should apply to fishing rights. Oda, *op. cit. supra* note 89, at 154.

¹⁰³ The nations at the conference should have fully recognized this in view of the interpretations given the paragraph in the preparatory draft. *Award of Lord Asquith of Bishopstone*, 1 Int'l Comp. L.Q. 247, 255 (1952); House Comm. on Science and Astronautics, *Ocean Sciences and National Security*, H.R. Rep. No. 2078, 86th Cong., 2d Sess. Serial h, 30-85, 134-39 (1960); Hearings Before the Committee on Science and Astronautics, *Frontiers in Oceanic Research*, 86th Cong., 2d Sess., on H.R. 6298, p. 70 (Apr. 28-29, 1960).

¹⁰⁴ This presents a question very similar to the one reviewed by the United Nations

could describe the rights available to all states in this area. The conflict of principles creates a very difficult question in view of recent discoveries of mountains in the ocean rising to within ninety feet of the surface. It is uncertain whether traditional rules of international law will be recognized as applying to areas far offshore, or whether the principles of article 1 of the Convention will be confined to a certain limit offshore.¹⁰⁵

The Continental Shelf Convention was adopted at the Geneva conference, receiving the required vote for ratification¹⁰⁶ on May 11, 1964. Although the Convention may not solve all the problems in establishing boundaries, it is a further step toward the promulgation of a recognized ocean floor division. Moreover, the application in the North Sea of the principles expounded by the Convention will have an international impact, for this is the testing ground for these new principles.

IV. CONCLUSION

Currently recognized international legal principles relating to off-shore areas have evolved during the past three decades in conjunction with the development of exploration techniques. Recognition and later rejection of proposed juridical principles have hindered the establishment of static doctrines definitely determining legal rights in submarine areas. Unlike well-established land boundaries, the submarine boundaries (except the ones established by treaty) are located and relocated as the customary law changes.¹⁰⁷ This approach was adequate when the ocean floor was not technologically explorable, but because new scientific developments make the entire ocean floor accessible to dominion and control, a permanent network of boundaries and a pronouncement of the legal rights attached to the jurisdictions created is an urgent necessity.¹⁰⁸ The United Nations has prepared several conventions in an effort to standardize the applicable principles in this area. When these conventions were adopted and ratified, they manifested the present recognition of certain boundary and juridical principles. A review of the United Nations Conventions on the Law of the Sea may be helpful in setting short-term boundaries or in determining the available rights in an established jurisdiction, but a simple comparison of the 1930 Hague Convention with

Conference on the Law of the Sea in 1958 concerning the free access of land-locked countries to the sea. U.N. Doc. No. A/CONF. 13/43 (1958).

¹⁰⁵ See McDougal, *Crisis in the Law of the Sea*, 67 Yale L.J. 539, 567 (1958).

¹⁰⁶ See note 44 *supra*.

¹⁰⁷ Padwa, *Submarine Boundaries*, 9 Int'l Comp. L.Q. 628 (1960).

¹⁰⁸ "It is difficult to imagine any arrangement more calculated to produce international

the 1958 Geneva Convention, reveals the uncertainty of any attempt at a long-term projection of legal rights.

Because the petroleum and mining industries operate primarily on an enduring basis, their property rights in an area where a boundary may exist are uncertain. The unsettled principles applicable in locating the baseline for measuring the breadth of the territorial sea creates the principal dilemma. The baseline is the key boundary in the traditional three-area division of the seas. Its location is determined by customary law ascertained by fusing the historical application of traditional doctrines and the current promulgation of recognized principles. The two Geneva conferences definitely have helped in narrowing the possible location of the baseline, but there still is a penumbral area inherent in the adopted principles. To aid the exploration in the Gulf of Mexico off the coast of the United States, the "Chapman Line" has been provided to prevent any loss to the petroleum industry due to litigation between the Federal Government and its coastal states over a baseline location.¹⁰⁹ To date, no such neutral exploration zone has been adopted as part of a United Nations convention for application in the North Sea or similar areas, such as the Gulf of Mexico.¹¹⁰ The result is that a petroleum company may risk losing its investment if it explores distant offshore areas in the absence of established rights. Presently, submarine rights in areas similar to the North Sea may be ascertained if established by treaty, but still other areas are not conducive to such an arrangement, leaving the rights in these areas uncertain.

A uniform recognition of the method for location of the baseline for measuring the breadth of the territorial sea would eliminate most of the conflict in the location of the outer boundary of the territorial sea, because the recognized numerical breadth is measured from the baseline. The available principles for locating the baseline are so general and erratic that it is not feasible to make an accurate location

friction that one which entitles nation A, it may be thousands of miles from nation B, to stake out claims in the continental shelf contiguous to nation B by 'squatting' on B's doorstep—at some point just outside nation B's territorial water limit." *Award of Lord Asquith of Bishopstone*, 1 Int'l Comp. L.Q. 247, 255 (1952).

¹⁰⁹ "The Chapman Line was intended to represent graphically the ordinary low-water mark and the seaward limits of inland waters. . . ." Shalowitz, *Shore and Sea Boundaries* 108 (1962). See Submerged Lands Act § 7, 67 Stat. 467 (1953), 43 U.S.C. § 1336 (1958).

¹¹⁰ The Treaty of Guadalupe Hidalgo provides: "The boundary line between the two Republics shall commence in the Gulf of Mexico, three leagues [nine miles] from land opposite the mouth of the Rio Grande. . . ." Treaty With Mexico on Peace, Friendship, Limits, and Settlement, Feb. 2, 1848, art. V. para. 1, 9 Stat. 922, T.S. No. 207, as amended, Treaty With Mexico on Boundary, Cession of Territory, Transit of Isthmus of Tehuantepec, etc. [Gadsden Treaty], Dec. 30, 1953, art. I, para. 1, 10 Stat. 1031, T.S. No. 208. Although these treaties settle the boundary location between the United States and Mexico, the terms therein specifically limit application to only nine miles from shore in the Gulf of Mexico. See generally Reiff, *The United States and the Treaty Law of the Sea* (1959).

of the outer boundary of the territorial sea. At one time the three-mile breadth was the recognized numerical measurement, but there is a strong indication that customary law soon will approve a twelve-mile breadth. This provides only an estimation to the petroleum industry of the location of the boundary separating the territorial sea from the high seas and provides little help in determining their permanent rights in these areas.

The traditional three-area division of the seas had established three jurisdictions, and within each jurisdiction the available legal rights of littoral and nonlittoral states. This approach was acceptable to most states until valuable deposits of minerals became exploitable in distant offshore areas, stimulating coastal states to claim legal rights in jurisdictions where such rights previously were not recognized. These claims, advanced on the basis of the Continental Shelf doctrine, have created a state of confusion because there are no definite limitations on the maximum scope of the doctrine. At what point traditional rules of international law will be recognized as the customary law and overrule claims made by littoral states is uncertain.

As might be expected, there is little agreement between littoral and non-littoral states concerning the solutions of these problems. Little progress can be anticipated in providing an accurate long-term answer for the petroleum and mining industry before exploration creates a controversy to be settled by arbitration¹¹¹ or by treaty. Though time consuming and costly, this seems to be an unavoidable incident of current international law.

¹¹¹ If the interpretation of concession agreements of the past serve as precedent, the oil companies taking concessions can expect only to receive half of their bargain. *Award of Lord Asquith of Bishopstone*, 1 Int'l Comp. L.Q. 247, 255 (1952).